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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,778	07/17/2000	MARINUS MARIAS BOONE	BO41592	3723
466	7590	12/15/2003	EXAMINER	
YOUNG & THOMPSON			NI, SUHAN	
745 SOUTH 23RD STREET 2ND FLOOR			ART UNIT	
ARLINGTON, VA 22202			PAPER NUMBER	

2643

DATE MAILED: 12/15/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/529,778

Applicant(s)

BOONE ET AL.

Examiner

Suhan Ni

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 19. 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to the applicant's amendment dated 09/15/2003.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because, for example, reference character "18" has been used to designate both "summing device" and "delay device", reference character "26" has been used to designate both "summing device" and "microphone", and reference character "22" has been used to designate "summing device" which can not be found in drawings

Since there are numerous minor informalities or errors, applicant's corporation for thoroughly revising the drawings and/or the specification would be highly desirable for speeding up the processing of this application.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 15-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 15, it recites the limitation of "the output signals" in line 3. There is insufficient antecedent basis for this limitation in the claim.

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Regarding claim 15, the limitation of “the respective transmission paths” in line 4 is indefinite since it is not clear what the limitation is.

Regarding claim 16, the limitation of “an output one of the array output signals” in lines 3-4 and “receiving as inputs the microphone output signals” in line 4 are indefinite since it is not clear what the limitations are.

Regarding claim 17, the limitation of “a first input an output of the corresponding weight factor device” in lines 6-7 and “receives as a second input a respective one of the microphone output signals ...” in lines 7-16 are indefinite and vague, since it is not clear what the limitations are.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. (US-4,773,095) in view of Gorike (US-4,904,078).

Regarding claims 12-13, Zwicker et al. disclose a hearing aid, comprising: an array of microphones (M1, M2, M1' and M2'), each of the microphones producing an electrical output microphone signals (Fig. 2); means (19, 20) for deriving a first output signals (22) and a second output signal (24); and a first transmitting path(30) and a second transmitting path (32) corresponding respectively to a left ear and a right ear (Fig. 3) of a user.

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But Zwicker et al. do not clearly teach that two different main sensitivity directions form an angle with respect to a main axis of the array as claimed. Gorike discloses a similar structured hearing aid, comprising an array of microphones (3) frontally mounted on a frame of eyeglass, wherein the array has two different main sensitivity directions (Fig. 6), said directions forming an angle with respect to a main axis of the array. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to mount the array of microphone frontally as taught by Gorike for the hearing aid as an alternate choice, in order to provide a hearing aid having more desirable frontal acoustic response with visual effects, especially when a sound source is located in front of the user.

Furthermore, neither Zwicker et al. nor Gorike clearly teach an omni-directional microphone as claimed. Since providing one or more omni-directional microphone for the hearing aid is very well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide a set suitable omni-directional microphone, such as the microphone having two openings in the same direction, for the array of the hearing aid, in order to provide a hearing aid having more desirable directional characteristics.

Regarding claims 14-15, Zwicker et al. further disclose the hearing aid, wherein at least part of the array is mounted on an arm of a pair of spectacles (Fig. 3) as claimed.

Regarding claim 16, Zwicker et al. further disclose the hearing aid, wherein a plurality weighting factor devices (13, 13', 14, 14') is provided for each of the microphones of the array, and a summing device (16, 23, 25) is provided for receiving the microphone output signals and generating an output signal of the summing device as claimed.

Regarding claims 17-18 and 23-26, neither Zwicker et al. nor Gorike teach the weighting factor/summing device pair as claimed. Since providing a circuitry having a weighting

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factor/summing device pair for each channel of a multi-channel hearing aid is well known in the art elements as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to be motivated to provide the circuitry for the hearing aid as an alternate choice, in order to enhance desirable directional acoustic characteristics and reduce noise.

Regarding claims 19-22, Zwicker et al. do not clearly teach a delay device as claimed. Since providing a delay device in a directional acoustic signal processing circuitry for an acoustic device is well known in the art, it therefore would have been obvious to one having ordinary skill in the art at the time the invention was made to be motivated to provide the delay device for the hearing aid as an alternate choice, in order to further enhance desirable directional acoustic characteristics and reduce noise.

Response to Amendment

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED

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FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

7. Any response to this final action should be mailed to:

**Commissioner of Patents and Trademarks
Washington, D.C. 20231**

or faxed to:

(703) 308-9051, (for formal communications; please mark "EXPEDITED PROCEDURE"), or

(703) 305-9508, (for informal or draft communications, please label "PROPOSED" or "DRAFT")


Hand-delivered responses should be brought to:

**Receptionist, Sixth Floor,
Crystal Park II,
2121 Crystal Drive,
Arlington, Virginia 22202**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Suhan Ni** whose telephone number is **(703)-308-9322**, and the number for fax machine is **(703)-305-9508**. The examiner can normally be reached on Monday through Thursday from 9:00 am to 7:30 pm. If it is necessary, the examiner's supervisor, **Curtis Kuntz**, can be reached at **(703) 305-4708**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is **(703) 305-3900**.

Suhan Ni
Patent Examiner
Art Unit 2643
USPTO


**SUHAN NI
PATENT EXAMINER**

December 13, 2003